
Thomas Edison
Kerosene Can Lid Base
First Screw-in Base
1880
Edison spear point lamp with
"Petticoat" press.
1880
Bamboo Filament
Gas Light Fixture Modified for
Edison Electric Lamp
1879



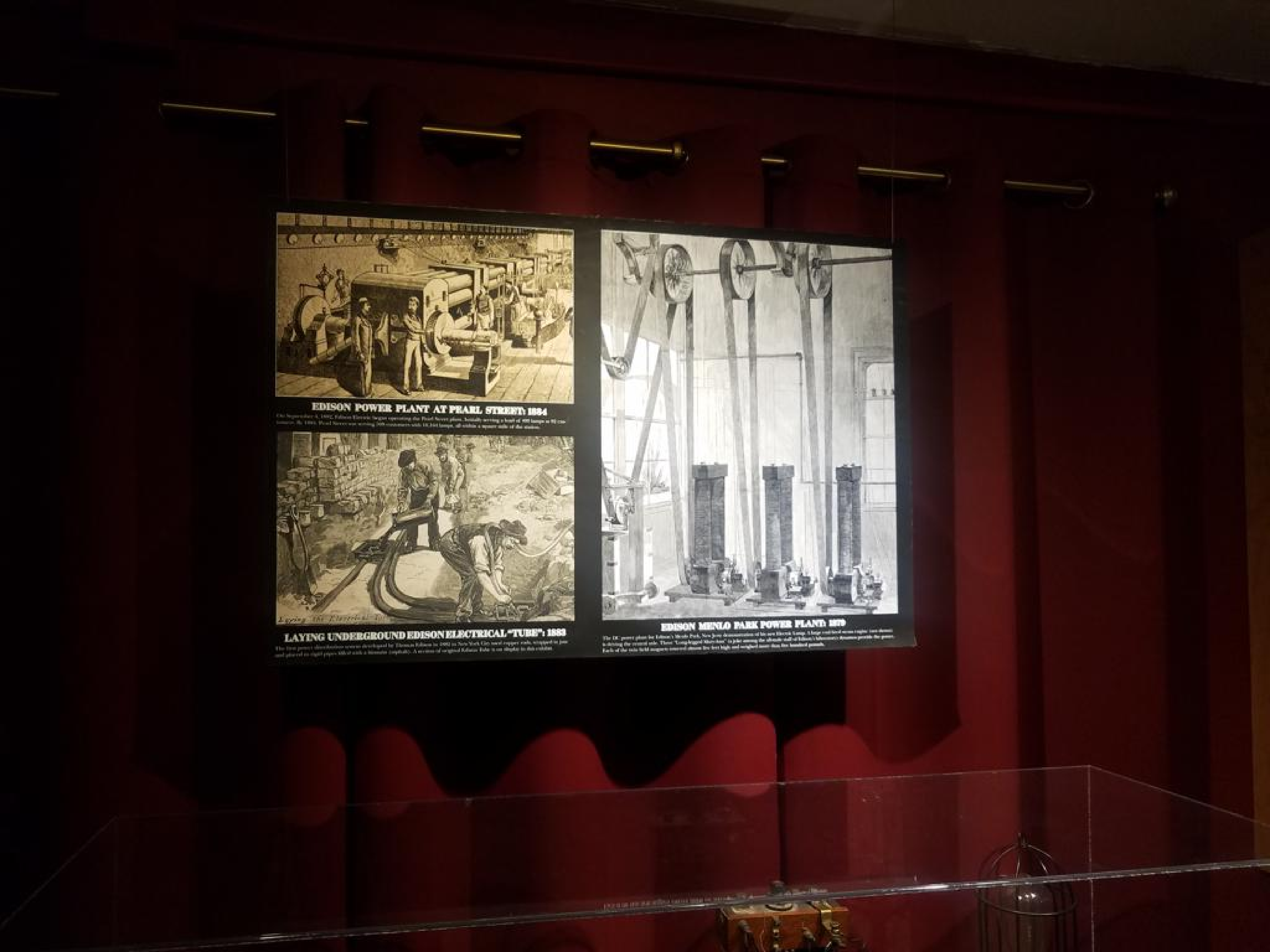





MEGAZAPPER
AT THE SPARK MUSEUM
Loud, scary fun for the whole family.


ZAPPER
AT THE SPARK MUSEUM
Loud, scary fun for the whole family.


DC DYNAMO POWERED BY STEAM ENGINE
In 1878, Thomas Edison and his assistants at Edison Electric designed a new system for incandescent lighting. Edison's system was based on direct current (DC).
The heart of the system was an electrical generator, known as a dynamo. The dynamo produced electricity when rotated, usually powered by a coal-fired steam engine or water wheel.
In this demonstration, a late 19th century Radiguet steam engine operates an Edison dynamo (known at the time as the "long-legged Mary-Ann") to produce power to light an early 20th century carbon filament electric lamp.
Three Edison dynamos installed in an early DC power plant. Note that the drive belts are attached to a large shaft, probably connected to a coal-fired steam engine.
START


EDISON POWER PLANT AT PEARL STREET: 1884
LAYING UNDERGROUND EDISON ELECTRICAL "TUBE": 1883
EDISON MENLO PARK POWER PLANT: 1879


On May 11, 1935, President Roosevelt issued Executive Order 7037 which created the Rural Electrification Administration. In 1936 The Congress endorsed Roosevelt's action by passing the Rural Electrification Act which funded development of electrical cooperatives throughout the county.
By 1959, ninety percent of farm homes in the U.S. were electrified, compared to only three percent in the early 1930s.
EDISON SYSTEM
PATENTED


voltages at the transformer output. A transfor
with direct current. Because DC isn't changing,
changing magnetic fields.


THE FIRST ELECTRICAL GENERATOR: 1832
THE FIRST DEVICE TO PRODUCE CONTINUOUS ELECTRICAL CURRENT
In the years 1831–1832 Michael Faraday discovered that placing a coil of wire in a moving magnetic field would produce an electrical current in the wire.
French Instrument maker Hippolyte Pixii built the first electromagnetic generator shortly thereafter. The device operates by rotating a permanent magnet near a coil of wire. The first version of the device produced alternating current, which at the time was considered useless. At the suggestion of the great André-Marie Ampère, Pixii modified the device to produce Direct Current.
The model you see before you is the actual patent model for the 1832 Pixii dynamo.
Pixii Dynamo
Unsigned but by Hypolyte Pixii., ca 1832






GEISSLER TUBES
4TH QTR. 19TH CENTURY
NOTICE ILLUSTRÉE
BOBINE RUHMKORFF
PRIX : UN FRANC


Daniel Davis
Compound Magnet and
Electrotome
USA
1840
Daniel Davis
Jerome Jewell Electro-Medical
Double Helix and
Reciprocating Armature Engine
USA


Tesla Motor
1st quarter, 20th Century
24
1856 - 1943


Barlow's Spur Wheel
Benjamin Pike, Jr.
ca. 1848
Watkins and Hill
Double Barlow's Wheel
English
1845
Very primitive electromagnetic motor invented by Rev. William Ritchie; "probably the first man to produce the rotary motion of an electromagnet," in 1833 (The Development of Electrical Technology in the 19th Century, United States National Museum Bulletin 228, Washington; D.C. 1962).
Ritchie's Motor
ca. 1830's


Barlow's Spur Wheel
Benjamin Pike, Jr.
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Ritchie's Motor
ca. 1830's




tish Double Barrel
Vacuum Pump
ca. 1850-1875
Early Vacuum
Demonstration Apparatus
(Italian)
ca. 1840's
The brass cup inside the glass sphere contains a bell. When the sphere is evacuated, the bell can no longer be heard.
Fountain-in Vacu (Artific
Fountain)
USA
1860's
Vacuum Pump
Electric Egg
ca. 1880


APPARATUS FOR RECEIVING SPACE SIGNALS
Stone Tel & Tel Co.
American, c. 1907
The only known example of a very early wireless receiver designed by the famous radio scientist John Stone Stone.




Bob Moog


RCA
W
RADIO
Westinghouse
Radio


French's
YELLOW


1312 BAY




THE WAR
Columbia



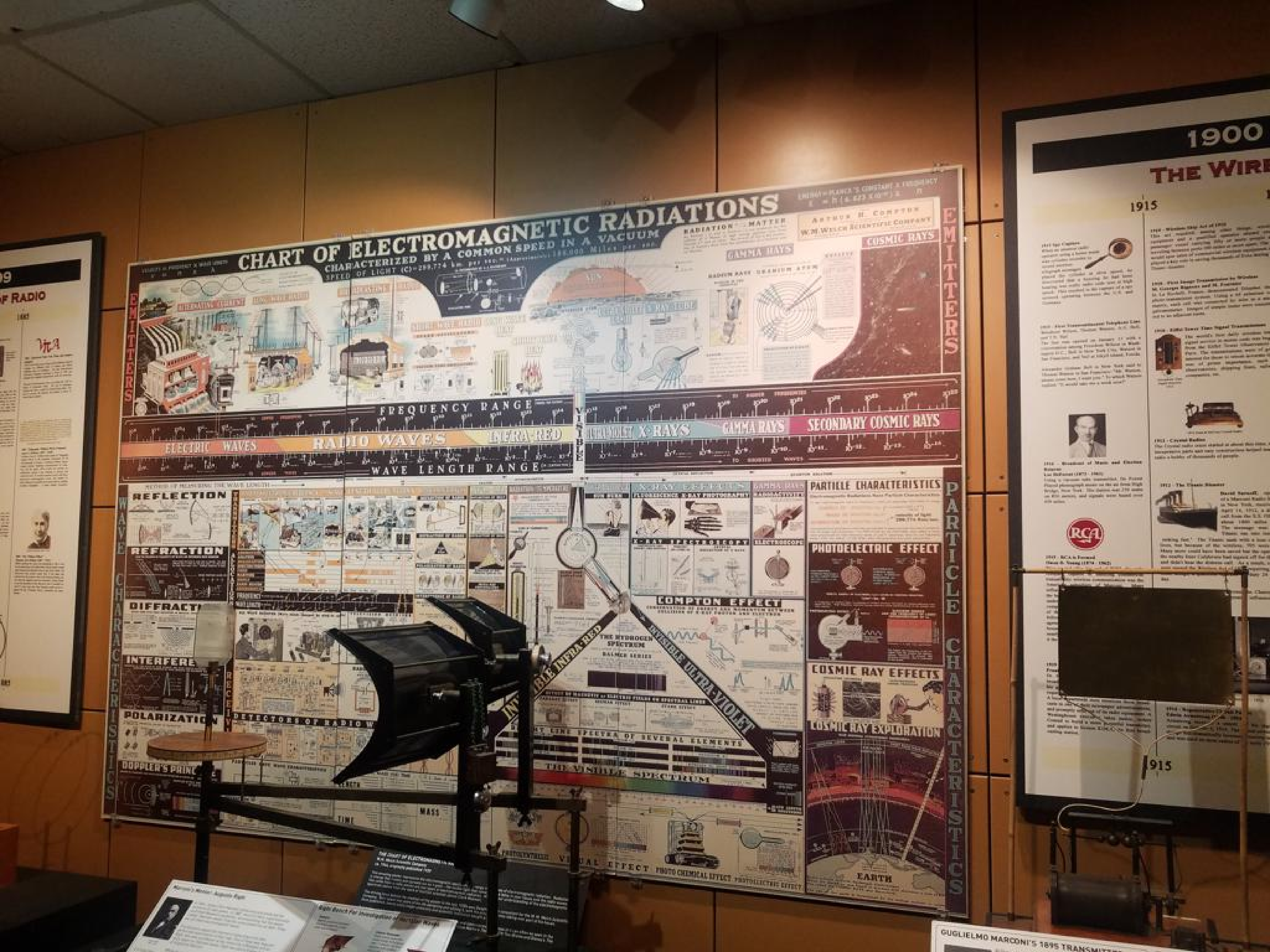


CHART OF ELECTROMAGNETIC RADIATIONS
CHARACTERIZED BY A COMMON SPEED IN A VACUUM
ARTHUR H. COMPTON
W.M. WELCH SCIENTIFIC COMPANY
RADIATION MATTER
GAMMA RAYS
COSMIC RAYS
EMITTERS
FREQUENCY RANGE
VISIBLE
ELECTRIC WAVES
RADIO WAVES
INFRA-RED
ULTRA-VIOLET
X-RAYS
GAMMA RAYS
SECONDARY COSMIC RAYS
WAVE LENGTH RANGE
WAVE CHARACTERISTICS
REFLECTION
REFRACTION
POLARIZATION
X-RAY EFFECTS
RADIOACTIVITY
X-RAY SPECTROSCOPY
ELECTROSCOPE
PARTICLE CHARACTERISTICS
PHOTOELECTRIC EFFECT
COMPTON EFFECT
THE HYDROGEN SPECTRUM
BALMER SERIES
INVISIBLE INFRA-RED
INVISIBLE ULTRA-VIOLET
THE VISIBLE SPECTRUM
COSMIC RAY EFFECTS
COSMIC RAY EXPLORATION
EARTH
TIME
MASS
VISUAL EFFECT
PHOTO CHEMICAL EFFECT
PHOTOELECTRIC EFFECT
1900
1915
RCA




TITANIC
TITANIC
S'HAMPTON


CHART OF ELECTROMAGNETIC RADIATIONS

GVILIELMI GIL-BERTI COLCESTREN-SIS, MEDICI LONDI-NENSIS,

DE MAGNETE, MAGNETI-CISQVE CORPORIBVS, ET DE MAG-no magnete tellure; Physiologia noua, plurimis & argumentis, & experimentis demonstrata.



LONDINI

EXCVDEBAT PETRVS SHORT ANNO MDC.

…men werden kann; dann aber … Stromes in Ketten, die einer- … im umgekehrten Verhältniſs … der flüssigen Theile. Wer- …n blos solche Ketten mit einander ver- …chen, in welchen die flüssigen Theile einerlei wirkliche Längen und dasselbe Leitungsvermögen haben, *so ist in diesen Ketten die Gröſse des Stromes dem Querschnitte des flüssigen Theils direkt proportional.* Indessen ist nicht zu übersehen, daſs an die Stelle dieser einfachen Bestimmung eine mehr zusammengesetzte treten muſs, sobald die reduzirte Länge des metallenen Theils nicht mehr als verschwindend gegen die des flüssigen angenommen werden darf, welcher Fall eintritt, so oft der metallene Theil sehr lang und dünn, oder der flüssige Theil gutleitend und mit ungewöhnlich groſsen Grundflächen genommen wird.

Aus der Gleichung

$$S = \frac{A}{L}$$

läſst sich leicht entnehmen, daſs wenn ein Theil aus der galvanischen Kette weggenommen und

Thread manifestly made many Vibrations corresponding to the Motions of the Tube.

Exper. 4. An electrical circular Cake of Bees-wax and Rosin, ten Inches in Diameter, was placed horizontally upon a tall Glass Receiver near 3 Feet high, such as is made use of for the dropping the Feather and Guinea. This Cake being, the preceding Evening about Eight o'Clock, warmed with an hot Iron held over it, and then struck perpendicularly all over it's Surface with the Hands in parallel Directions, and so left covered with a thin Pasteboard, was about 12 next Day at Noon gently uncovered, and an Ivory Ball about $1\frac{1}{2}$ Inch Diameter placed in the Centre, a fine white Thread about 10 Inches long, with a small Piece of Cork, the Size of a Pin's Head, at the End of it, being held between the Finger and Thumb, was gently let down upon the Vertex of the Ball; it first flew off at some Distance, and then made several pretty regular Revolutions from West to East about it, in the Form of a Circle.

Exper. 5. The Ball was removed, and the Cake again warmed and excited as before; after which the Ball was replaced at a little Distance from the Centre, nearer to Mr *Wheler*; the Consequence of which was, that the pendulous little Body moved with a direct Motion as before, but in an Orbit that resembled an Ellipse, having the Ball in one of it's *Foci*.

Exper. 6. Two Bullets fixed on little Stands of Cork about $\frac{1}{4}$ of an Inch high, were placed upon the Cake, each about an Inch distant from the Centre of it, and in a Line with the Centre and Mr *Wheler*; the pendulous Body described an Orbit resembling an Ellipse, having the two Bullets for it's *Foci*, and the Motion was direct from West to East.

Exper. 7. Instead of the Cork, another pendulous Body of a cylindrical Form was made use of, tied to a fine white Thread about 20 Inches long; the Cylinder consisted of two circular Bases of Paper $\frac{1}{2}$ an Inch Diameter, but all cut away except a Ring and a small Bar cross the Middle, through which Basis 6 equal fine Threads passed at equal Distances from one another, knotted at the lower Base separately, and joined together in one Knot at about $\frac{1}{2}$ an Inch Distance from the upper Base, from which Knot proceeded the long Thread. This Body moved from West to East about the central Ball, and at the same time discovered a Motion about it's own Axis in the same Direction; but after two or three Turns generally stopt, and turned the contrary Way, which seemed to arise from the untwisting of the Thread.

Exper. 8. A Thread about a Foot long, was suspended from a horizontal Line of Packthread, parallel to it an excited Tube placed erect in a Stand, the Thread approached the Tube, and continued in a State of Attraction: A Thread of the same Length, suspended from a Silk Line, vibrated backward and forwards 2 or 3 times, being first attracted, and then repelled, and continuing some time repelled; but upon joining the Top of the Tube, by a Packthread going round it, to the Loop of the Thread, the Thread continued constantly in a State of Repulsion, shewing no Tendency to Attraction.


LE TELEGRAPHE
L' Electricite


Imagine

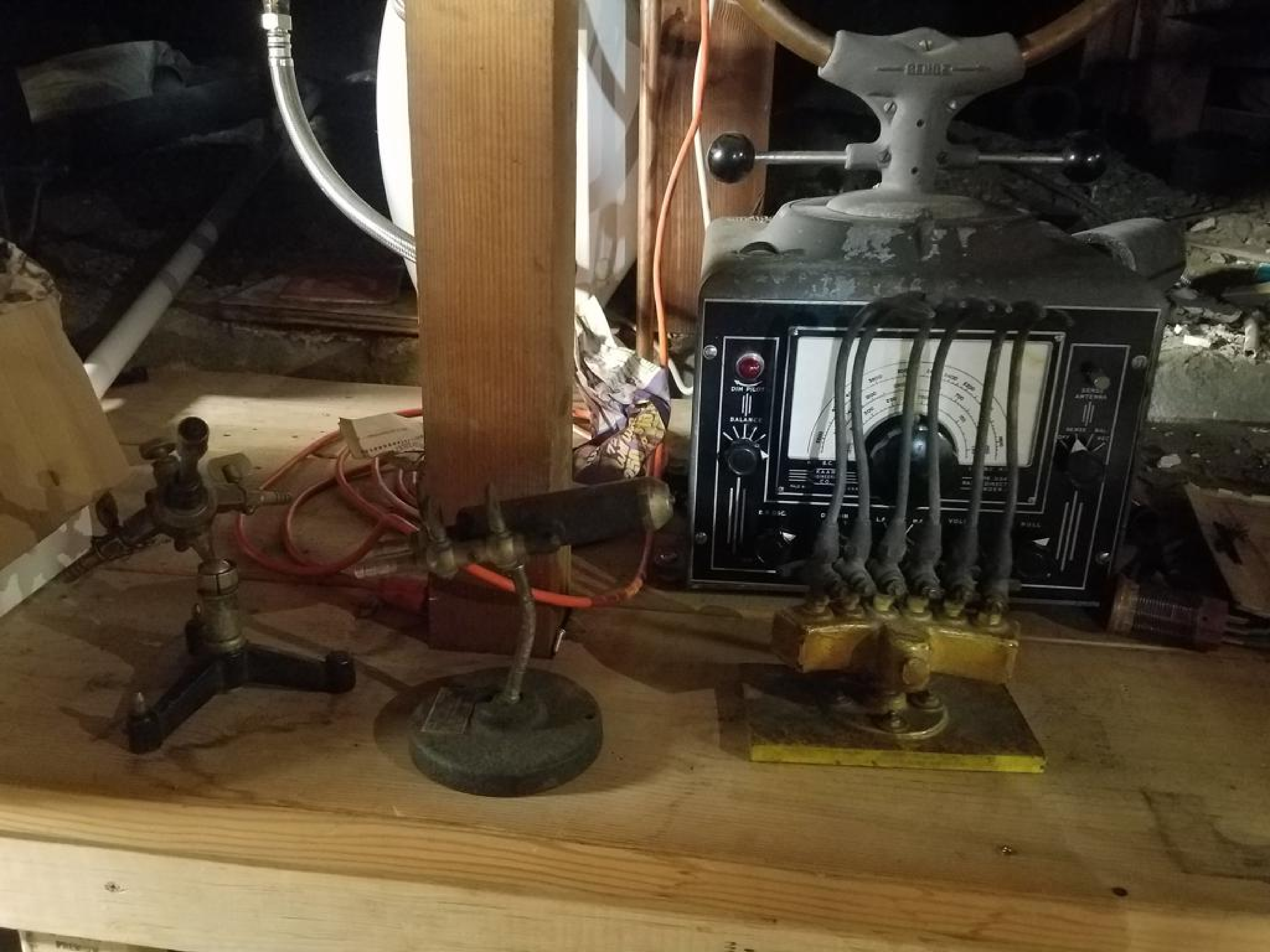



H. Poincaré
Baudot
Crookes


RAYON
D'OR
PAL
DERNIER MOT
DE L'ECLAIRAGE
SALLE D'EXPÉRIENCES
15. BOULEVARD DES ITALIENS


EDISON
LAMPS
CONTENTMENT
1928


CFL
Halogen
LED













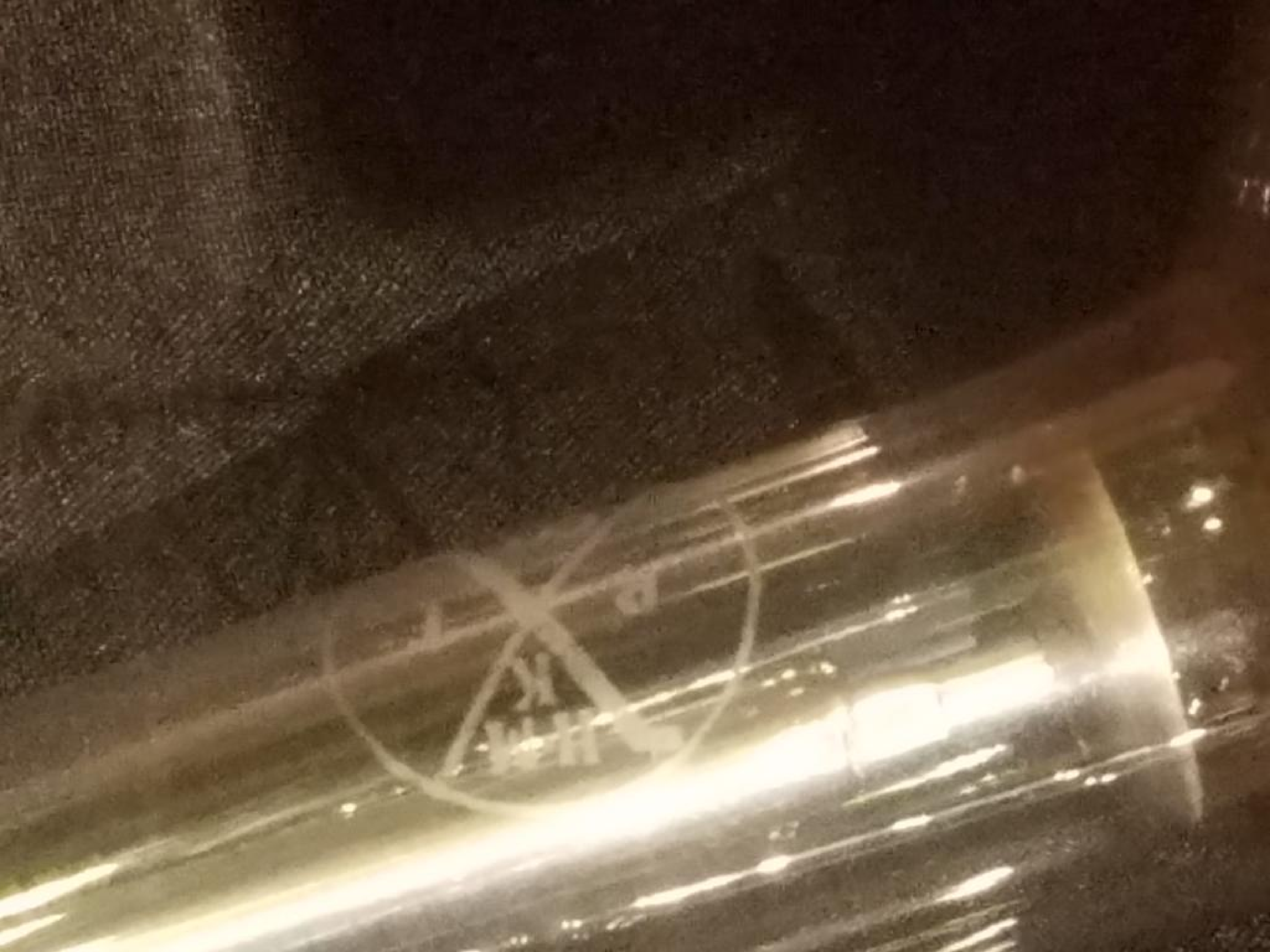





SPARK
DANGER


SPARK






NIKOLA TESLA



OTICE ILLUSTRÉE
E RUHMKORFF
EDITION
EILS D'APPLICATION DOMESTIQUE
FRANC

d
low-
ent.

NOTICE ILLUSTRÉE

SUR LES

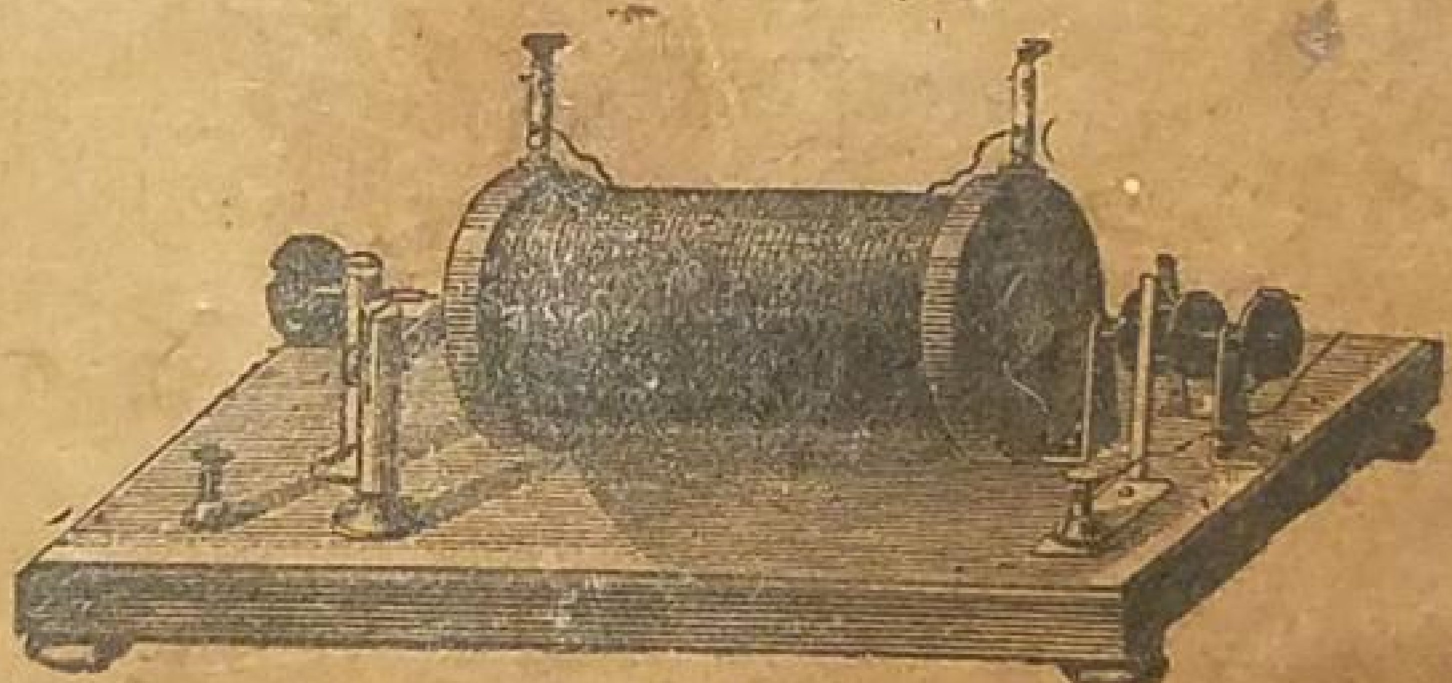
EXPÉRIENCES CURIEUSES ET AMUSANTES

QUE L'ON PEUT RÉPÉTER AVEC LA

BOBINE RUHMKORFF

PAR A. LOISEAU FILS

Complètement refondue par un Praticien



13e ÉDITION

ENRICHIE D'UN PORTRAIT DE RUHMKORFF

SUIVIE D'AUTRES EXPÉRIENCES D'ÉLECTRICITÉ

et de la

DESCRIPTION DE QUELQUES APPAREILS D'APPLICATION DOMESTIQUE

PRIX : UN FRANC

Tubes de Geissler

NOTICE ILLUSTRÉE

SUR LES

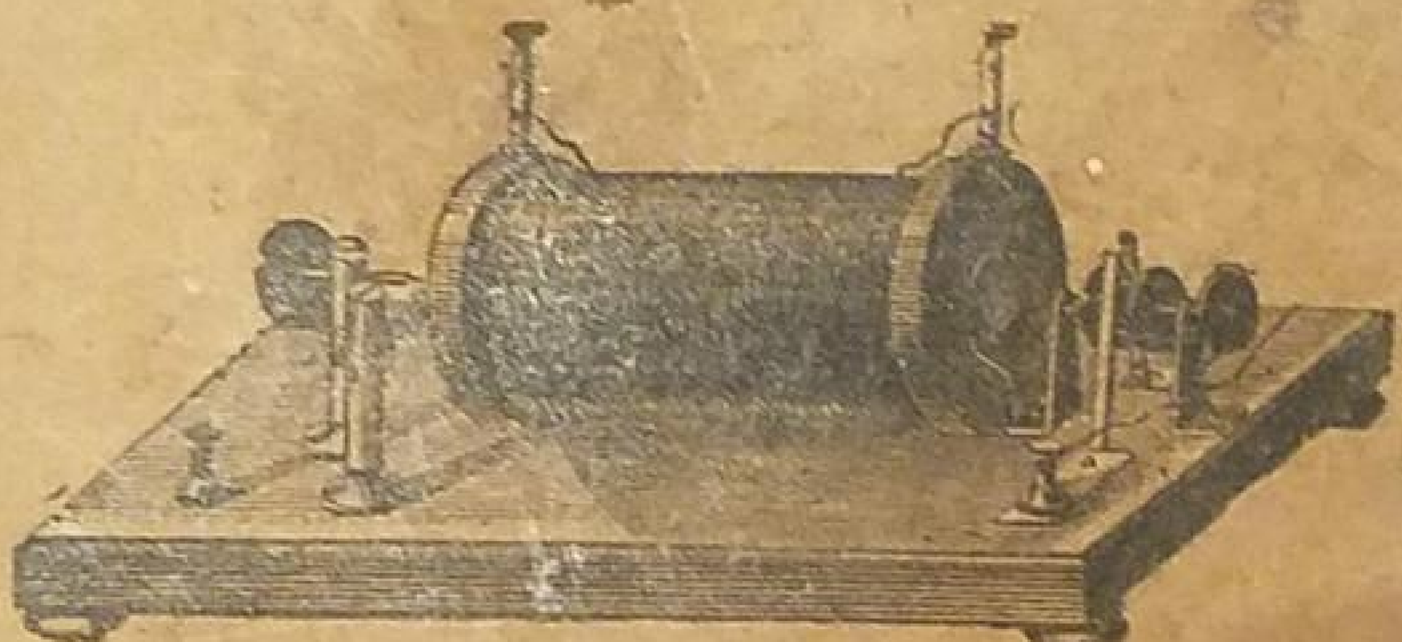
EXPÉRIENCES CURIEUSES ET AMUSANTES

QUE L'ON PEUT RÉPÉTER AVEC LA

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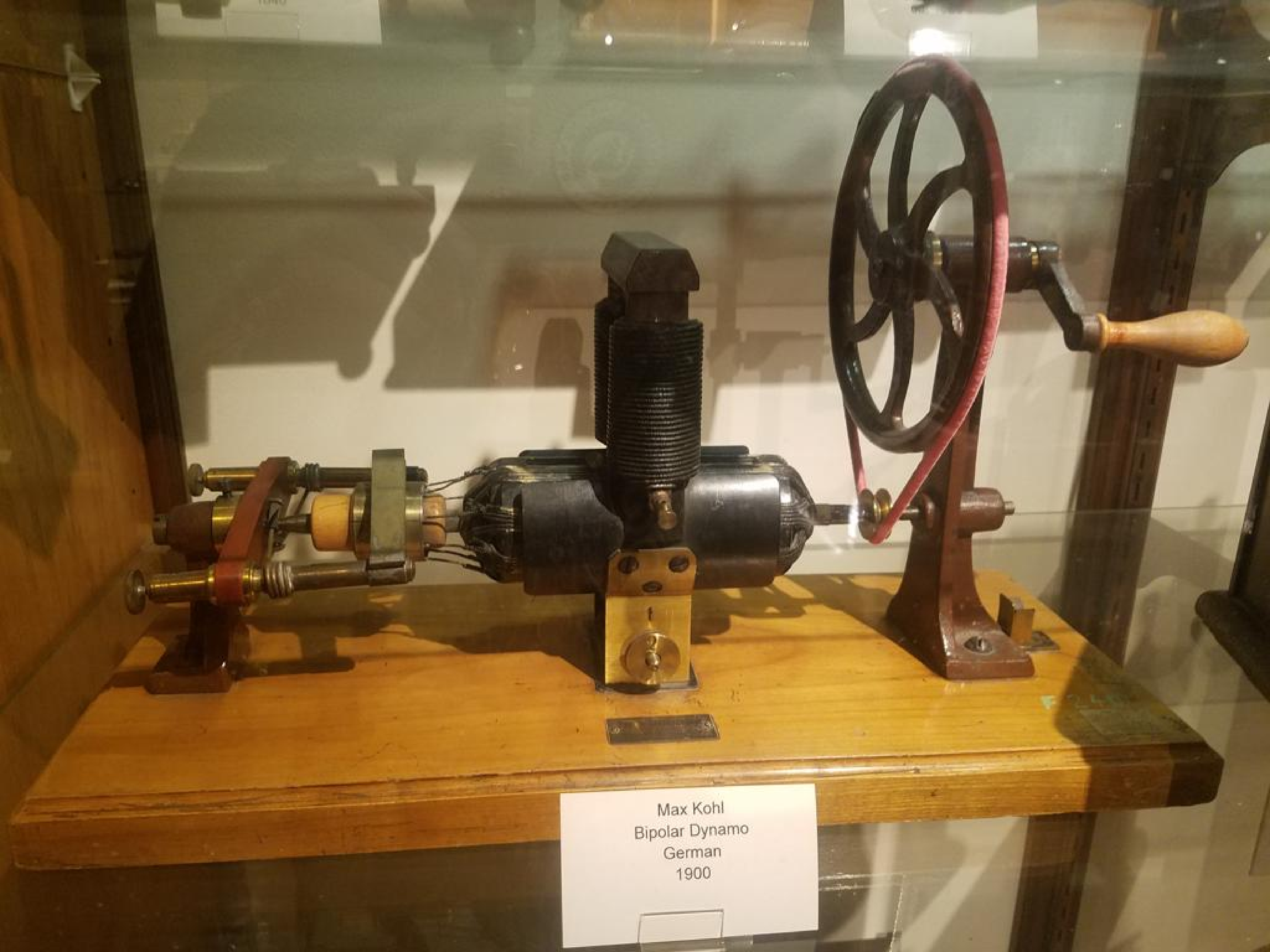
PRIX : UN FRANC

Tubes de Geissler

Lumineux.


Geissler Tubes
4th qtr, 19th Century
Heinrich Geissler (1814-1879) developed these tubes as a result of his research into the effect of passing high voltage electricity through gasses in a glass enclosure. His work led to the development of the neon light and the laser.
Rhumkorff Coil (Signed)
1865
Bobin

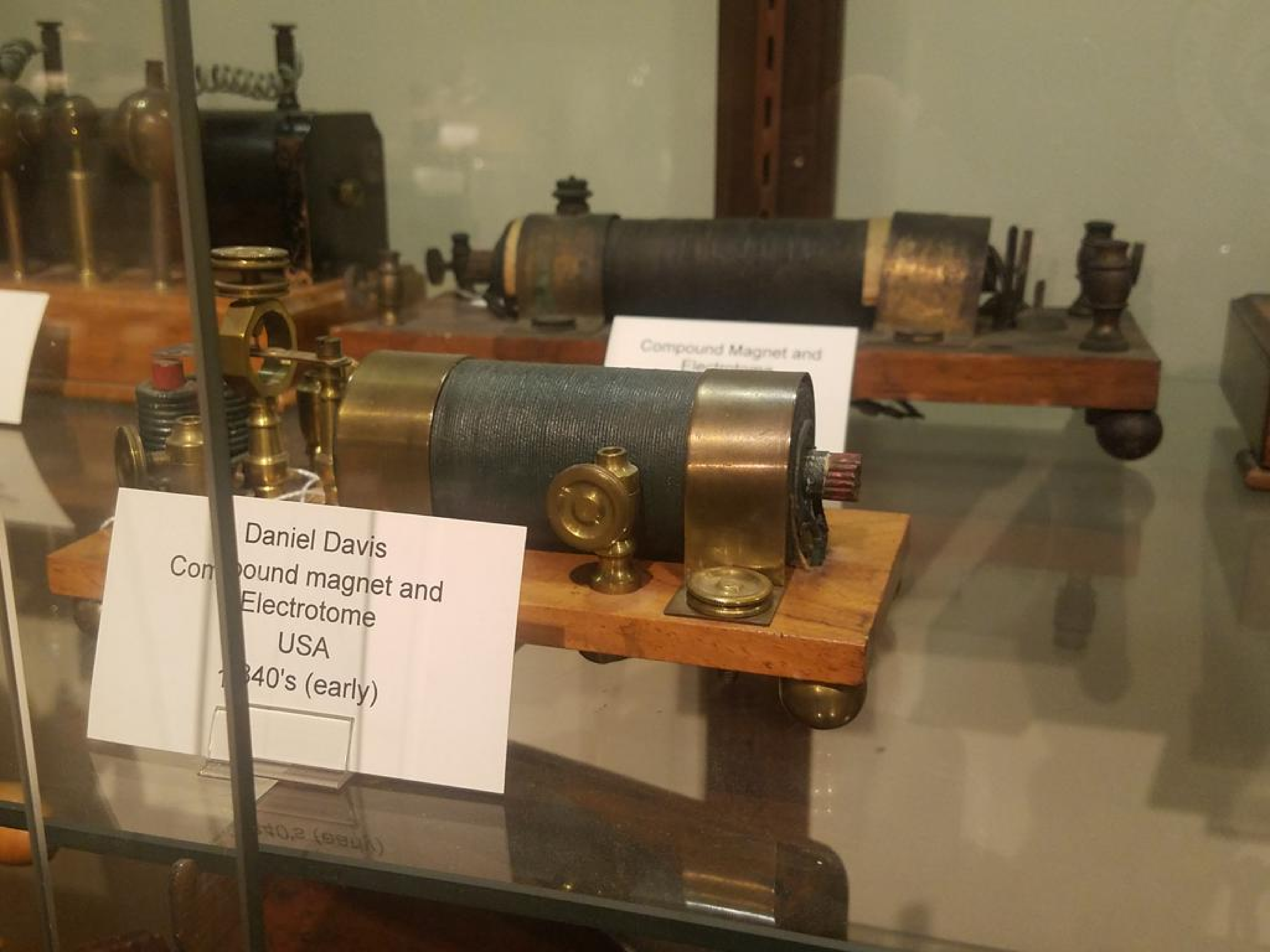

Early Sullivan
Rhumkorff Coil
ca. 1895
Guglielmo Marconi used
Sullivan coils just like this one
in his early experiments.


Max Kohl
Bipolar Dynamo
German
1900


Daniel Davis
Compound Magnet and
Electrotome


Mercury Interrupter
Max Kohl
(German)
ca. 1900


English Induction Coil
Ca. 1920'
Primitive handwound Electrical
Interrupter
English
1840


Compound Magnet and
Daniel Davis
Compound magnet and
Electrotome
USA
1840's (early)


Induction Coil with
Righi Spark Gap
ca. 1920's




Tesla Coil
Griffin & Co. (British)
Early 20th century


Daniel Davis
Contracting Helix
USA
1848


Barlow's Spur Wheel
Benjamin Pike, Jr.
ca. 1848


Barlow's Spur Wheel
Benjamin Pike, Jr.
ca. 1848
Watkins and Hill
Double Barlow's Wheel
English
Very primitive electromagnetic motor invented by Rev. William Ritchie; "probably the first man to produce the rotary motion of an electromagnet," in 1833 (The Development of Electrical Technology in the 19th Century, United States National Museum Bulletin 228, Washington; D.C. 1962).
Ritchie's Motor
ca. 1830's


Watkins and Hill
Double Barlow's Wheel
English
1845
Paddlewheel Magnetic Motor
French
1860's
Pike
Barlow's Spur-Wheel and
Faraday's Rotating Wire
USA
1848


Faraday's Motor
with Mercury Cups
19th Century
Davis
Spur-Wheel
USA
1848
Revolving Magnet
Benjamin Pike, Jr.
ca. 1848
Watkins and Hill
Early Farady Motor
English
1830
23
FARADAY ROTATING WIRE
EXPERIMENT
American, c. 1830's
An early example of the first device to use
electromagnetism to convert electricity into motion,
invented by the great Michael Faraday in 1821.

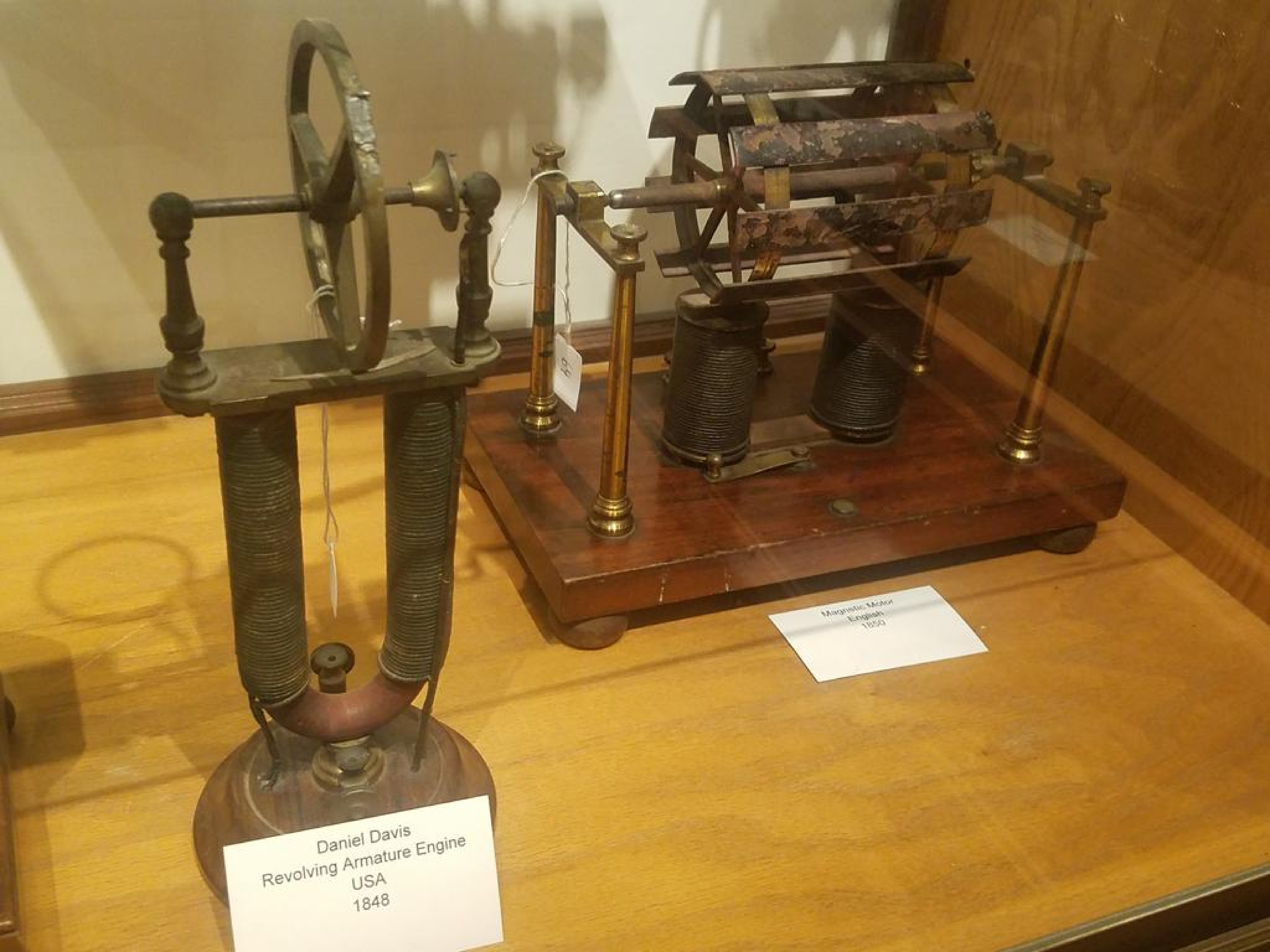


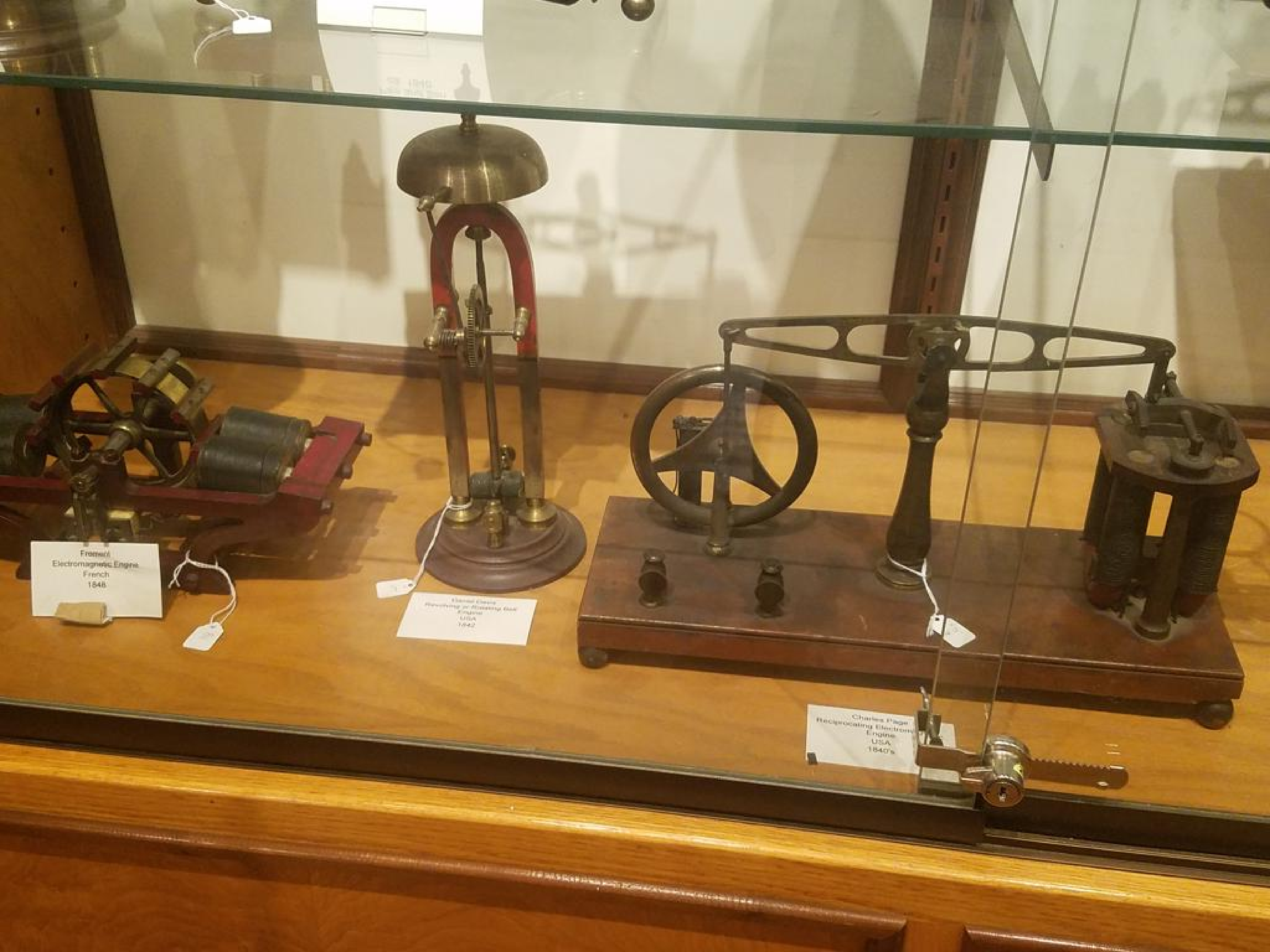
Pike
Ampere's Rotating Battery
USA
1848
Revolving Armature Engine
1848
Revolving Electromagnet
Daniel Davis
1848


Apparatus to Exhibit Deflection and Rotation of an Electrified Wire about the Pole of a Fixed Horizontal Magnet
Watkins and Hill
1845
Pike
Ampere's Rotating Battery
USA
1848
Revolving Armature Engine
1848
Revolving Electro
Daniel Dav
1848


Single Ampere's
Rotating Battery
ca. 1862
Apparatus to Exhibit Deflection
and Rotation of an Electrified
Wire about the Pole of a Fixed
Horizontal Magnet
Watkins and Hill
1845
Pike
Ampere's Rotating Battery
USA
1848


Magnetic Beam Engine
Queen and Co.
ca. 1860's
Unusual Magnetic Motor
English
1860

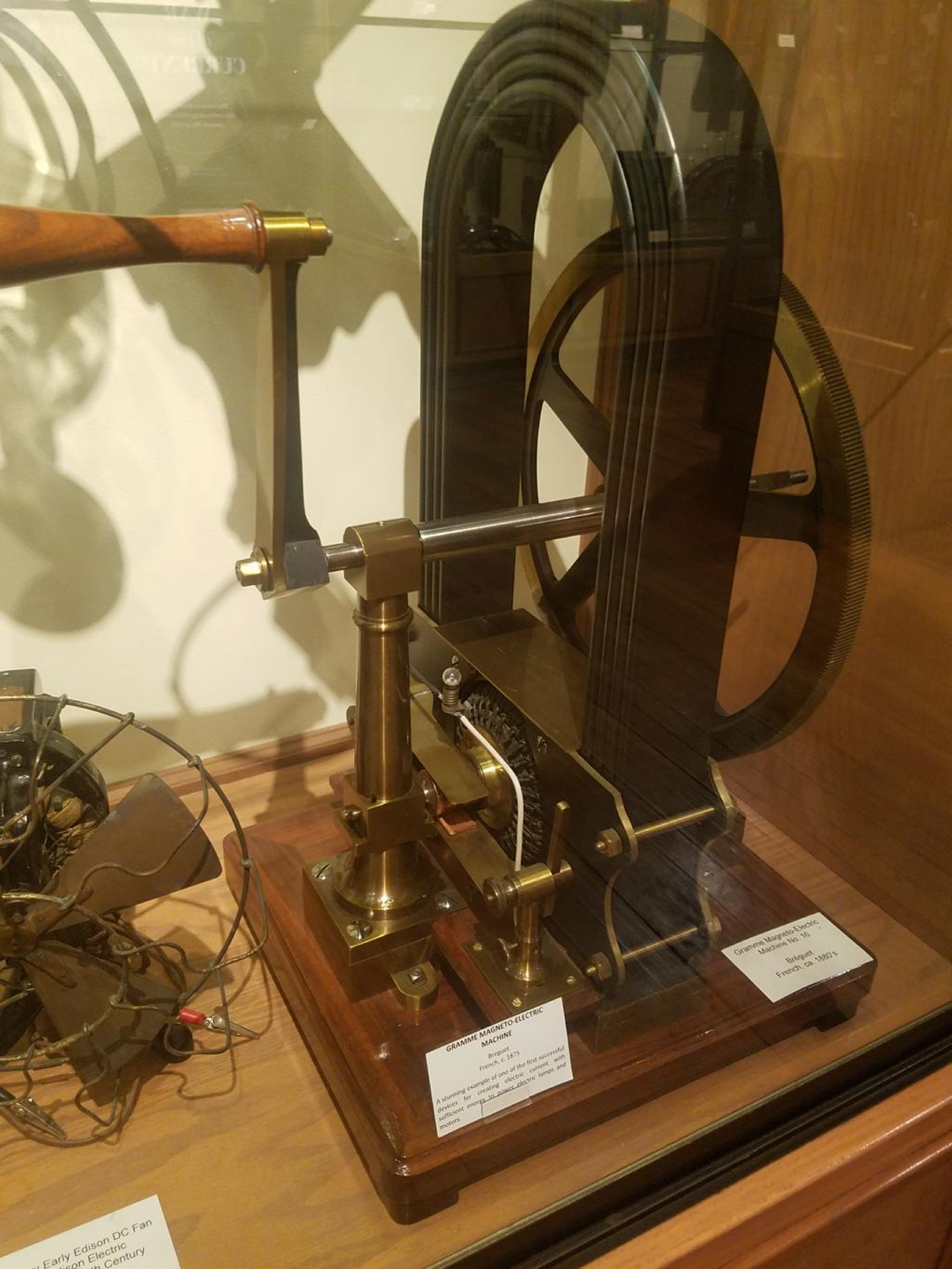

Magnetic Motor
English
1850
Daniel Davis
Revolving Armature Engine
USA
1848


Froment
Electromagnetic Engine
French
1848
Engine
USA
Charles Page
Engine
USA
1840's



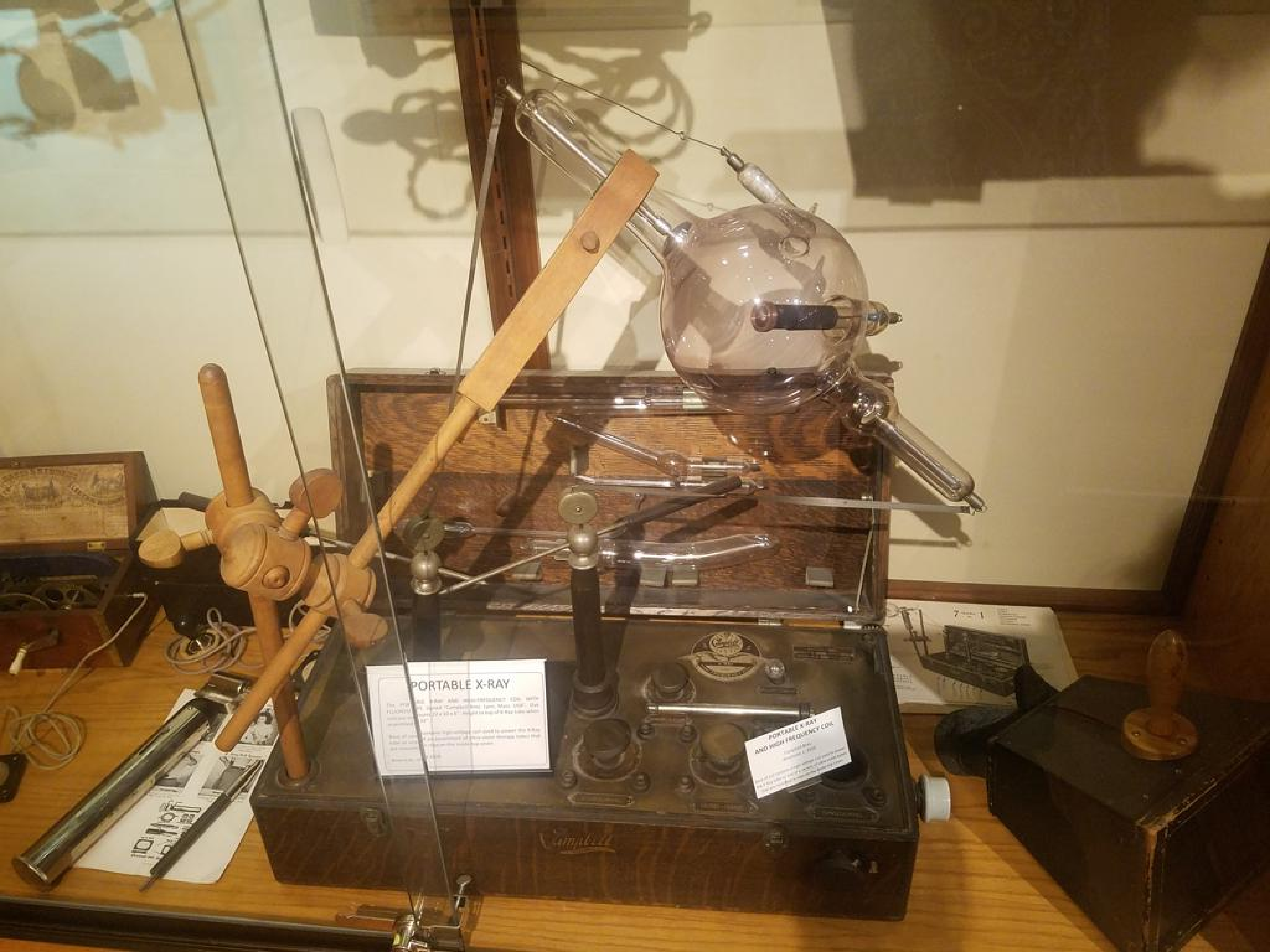

Early Vacuum
Apparatus
(Italian)
ca. 1840's
The brass cup inside the glass sphere contains a bell. When the sphere is evacuated, the bell can no longer be heard
Fountain-in Vacu (Artificial
Fountain)
USA


Pezzo staccato
dalla
Macchina
Pneumatica
Newtons Egg
4th qtr 19th century
Early Vacuum
Demonstration Apparatus
(Italian)
ca. 1840's
The brass cup inside the glass sphere contains a bell. When the sphere is evacuated, the bell can no longer be heard.


GRAMME MAGNETO-ELECTRIC MACHINE
Breguet
French, c. 1875
A stunning example of one of the first successful devices for creating electric current with sufficient energy to power electric lamps and motors.
Gramme Magneto-Electric Machine No. 16
Breguet
French, ca. 1880's
Early Edison DC Fan


GRAMME MAGNETO-ELECTRIC MACHINE
Breguet
French, c. 1875
A stunning example of one of the first successful devices for creating electric current with sufficient energy to power electric lamps and motors.
Very Early Edison DC Fan
Edison Electric
4th Qtr. 19th Century

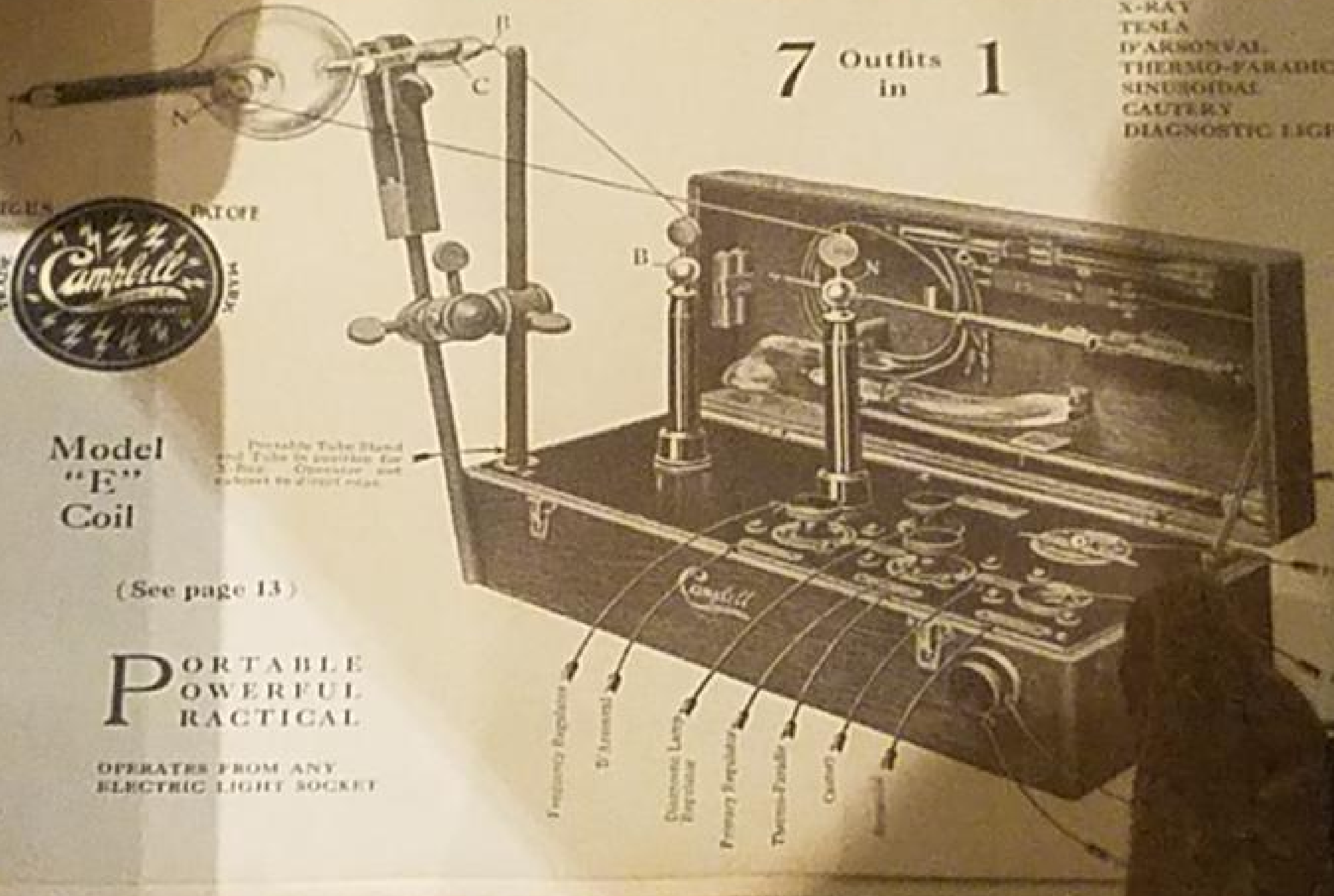

GRAMME MAGNETO-ELECTRIC
MACHINE
Gramme Magneto-Electric
Machine No. 16
Bréguet
French, ca. 1880's


PORTABLE X-RAY
PORTABLE X-RAY
AND HIGH FREQUENCY COIL


PORTABLE X-RAY
HIGH FREQUENCY COIL

7 Outfits in 1

X-RAY
TESLA
D'ARSONVAL
THERMO-FARADIC
SINUSOIDAL
CAUTERY
DIAGNOSTIC LIGHT



REG U.S. PAT OFF
TRADE Campbell MARK

Model "E" Coil

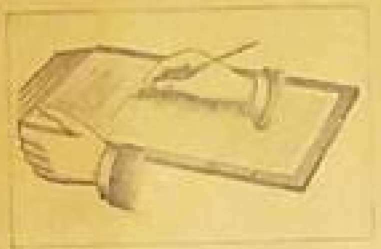
(See page 13)

PORTABLE
POWERFUL
PRACTICAL

OPERATES FROM ANY ELECTRIC LIGHT SOCKET


EDISON ELECTRIC PEN
The first electric copy machine, and probably the first practical application of the electric motor.
Thomas Edison invented the electric pen as a means to produce copies of his correspondence and notes. A small electric motor operates a tiny needle in a rapid up/down motion, producing a series of small holes as the operator writes on specially treated paper. Later, a roller is used to press ink through the holes, producing duplicates of the original document.
Shown here with original battery and stand. Very rare. American, c. 1876.
21


DIRECTIONS
The Edison Mimeograph,
THE A. B. DICK COMPANY,
PRICE LIST.
EXTRA SUPPLIES
A. B. DICK COMPANY
EDISON'S MIMEOGRAPH.
EDISON MIMEOGRAPH
A.B. Dick Company
American, c. 1900
Using patents licensed from Edison, A.B. Dick developed a duplication process based on waxed wrapping paper which he called the "Mimeograph."



DIRECTIONS

FOR USING

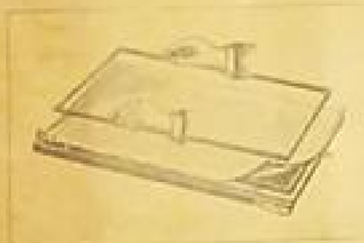
The Edison Mimeograph,

MANUFACTURED ONLY BY

THE A. B. DICK COMPANY,

152 & 154 LAKE STREET

CHICAGO.



Remove the printing frame from the board by loosening the clasp at the hinge and lay to one side.

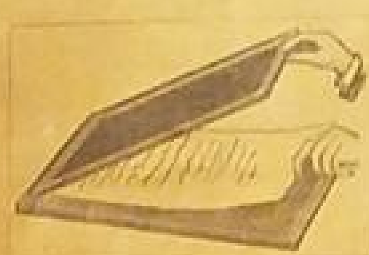
Place a sheet of blotting paper over the lower part of the printing board, allowing it to come very near or quite to the bottom of the writing plate, and fasten at the side with the clasps.

Place the stencil paper (*writing side up*) on the blotter and board so that [illegible] will rest on the writing plate, and lay another blotter over the lower part of same for the purpose of keeping the stencil paper free from wrinkles and scratches.

Write on the stencil paper (*over the plate only*) with the stylus as you would with a *hard lead pencil*, taking care to give an equal, though only a slight pressure on the upward and downward strokes, and as the space is filled, move it forward with the left hand, and so on until the stencil is completed.



Remove the stencil sheet and slide the blotter up to cover the writing plate, and fasten as before. Now lay the printing frame, bottom side *uppermost* and remove the metal tightening frame by loosening the clasps at the sides and end, then lay the stencil sheet evenly over same (*with written side or face of the stencil DOWN*), and place the metal frame on the stencil sheet, pressing it into the grooves in the wooden frame (taking care to place the "center punch" mark on the metal and wooden frames together), and fasten with the clasps at the sides and end. After attaching the frame to writing board the stencil is ready for use.



Take off the cap of the collapsible ink tube and by pressing gently force out upon the slate a few drops of ink and distribute it evenly on the roller by passing it over the slate in different directions.

Now pass the roller over the stencil until well inked and a good copy appears on the blotter. Leave the blotter in its place and raise the frame; place a blank sheet of paper over the copy on the blotter, and pass the ink roller lightly over the stencil *once, in one direction only*, and so on, until the desired number of copies are obtained.

PRICE LIST.

No. 0 EDISON MIMEOGRAPH [illegible]

No. 12. EDISON MIMEOGRAPH [illegible]

No. 20. EDISON MIMEOGRAPH [illegible]

No. 30. EDISON MIMEOGRAPH [illegible]

No. 51. EDISON AUTOMATIC MIMEOGRAPH [illegible]

No. 51. EDISON AUTOMATIC MIMEOGRAPH [illegible]

No. 51. EDISON AUTOMATIC MIMEOGRAPH COMBINATION MACHINE, [illegible]

N. B.—ORDER BY NUMBER ONLY. SPECIAL SIZE MIMEOGRAPHS MADE TO ORDER.

EXTRA SUPPLIES.

AUTOGRAPHIC STENCIL PAPER.

"Standard" [illegible]

"Medium" [illegible]

"Insurance" [illegible]

"Cross-Ruled" [illegible]

"Blank" [illegible]

MIMEOGRAPH INKS, BLOTTERS, ETC.

[illegible]

TYPEWRITER STENCIL PAPER.

[illegible]

POSTAGE—On Autographic Stencil Paper, [illegible]

Always include postage in your remittance when ordering supplies.

IN ORDERING ALWAYS GIVE THE NUMBER OF THE MIMEOGRAPH FOR WHICH THE SUPPLIES ARE INTENDED.

A. B. DICK COMPANY.

CHICAGO, U. S. A.

BRANCH OFFICE, 47 NASSAU STREET, NEW YORK.


Aepinus Condenser
French
ca. 1880


















JOSEPH HENRY ELECTROMAGNET
Joseph Henry was one of the greatest early pioneers of electricity. He developed the first practical electromagnet, and it was through his help that Bell developed the telephone and Morse developed the telegraph.
Henry also built what many scholars consider to be the first electric motor. The motor consisted of a horizontal armature that rocked between two C-shaped electromagnets. Today Henry's motor, containing only one of the C-shaped magnets, resides in the Joseph Henry Collection at Princeton University. This is the other electromagnet, hand-made by the great Joseph Henry.
American, c. 1842


Daniel Davis
Collection of Early
Electromagnets
English
1830-1845
Helix on Stand
Daniel Davis, Jr.
ca. 1848


Max Kohl
Waltenhofen's Electromagnetic
Pendulum
Germany
1900
Early Electromagnet
Demonstration Apparatus
1852


Ampere's Table
French
ca. 1875
Permanent Magnet
Demonstration Apparatus
1860
Permanent Magnet
Demonstration Apparatus
1860

DAVIS & KIDDER'S PATENT MAGNETO-ELECTRIC MACHINE







FOR NERVOUS DISEASES.

PATENTED AUG. 1, 1854.

EATON BROTHER'S GENERAL AGENTS. 212 PEARL ST. NEW YORK.

From Prof. Silliman,
of Yale College.

Mr. Ari Davis,

Dear Sir. — Dr. Walter Kidder has exhibited to me a Magneto-Electric Machine, invented by you. For neatness, compactness, and facility and energy of operation, it is far superior to any instrument of the kind which I have seen. For medical application, it possesses very decided advantages.

B. SILLIMAN, Sen.

New York, April [illegible], 1854.

Directions. — Connect two metallic cords or wires with the Sockets in the ends of the Box, and apply the handles connected with the other ends of the metallic cords or wires to any part of the person through which it is desirable to pass the current of Electricity. Then turn the Crank, regulating the strength of the current by the speed, and by the Knob at the end of the Box; it being desirable to increase the strength only to that degree most agreeable to the patient. It is less unpleasant to the patient if wet sponges are placed in the ends of the Handles, and these applied to the skin, as they prevent the prickling sensation. The sponges should never be put inside of the Box while wet, as they rust the machinery. In applying it for the Toothache, Tic-Doloreux, or Neuralgia, the operator takes one Handle and places his finger or sponge over the part affected, while the patient holds the other Handle. In applying it to the foot, place one of the Handles in the water with the foot, and hold the other in the hand, or apply it to any other part of the person. The Bearings and Springs must be oiled occasionally.

Manufactured and sold by W. KIDDER, Sole Proprietor, [illegible] Mass., whose signature is attached to all genuine Machines. All infringements upon his patent will be prosecuted.

From Prof. Page,

Washington, March [illegible], 1854.

Mr. Ari Davis,

Dear Sir.—Upon examination and trial, I find your Magneto-Electric Machine more efficient for its size than any I have ever seen. The improvement you have made is one possessing much scientific interest.

Yours respectfully,

Chas. G. Paige.



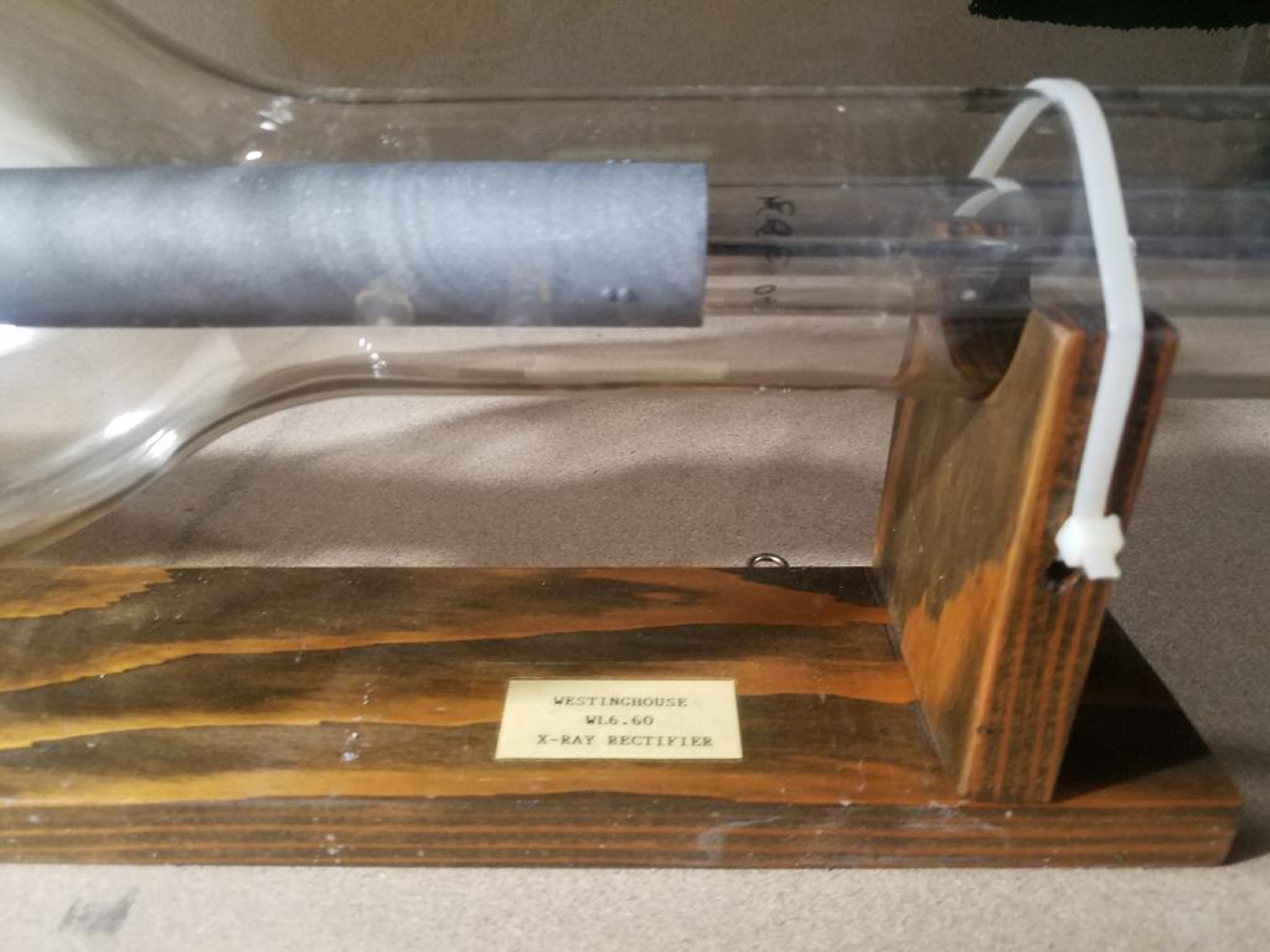
COMPOUND MAGNETO-ELECTRIC MACHINE,
FOR MEDICAL PURPOSES.
DIRECTIONS.
ASAHEL DAVIS,
LOWELL, MASS.,


IMPROVED MAGNETO ELECTRIC MACHINE.
ELECTRO MAGNETIC MACHINES, TELEGRAPH REGISTERS,
RECEIVING MAGNETS AND KEYS,
MANUFACTURED AND FOR SALE BY
W. C. & J. NEFF, No. 3 South Seventh Street, Philadelphia.
38


IMPROVED MAGNETO ELECTRIC MACHINE.
The operation of the machine is as follows:—Take the crank and screw it into its place, the metallic end of one conductor is inserted in the hole in the end of the frame near the crank, and screwed fast, the other is connected to the screw-post at the other end of the box,—the operator or the patient then turns the crank having the armature on the end of the magnet, and the rolling armature all the way in; application of the conductors is then made, the operator taking hold of the end of the wire connected with the rolling armature, and drawing it out until the patient has sufficient power. When the armature arrives at the end of the magnet, should there not be power enough, all that is necessary to do, is to replace the rolling armature, and withdraw the one from the end of the magnet, then withdraw the rolling armature as before, which will give you the full power of the instrument. Care must be taken that the wires do not come in contact with the revolving coils; when the machine is ready to operate, the box can be shut and locked, the wires passing through the notches cut in the box for that purpose. Care must be taken that the bearings of each of the shafts are oiled whenever they need it, the springs also where they bear upon the break. This is the only Magneto Electric Machine where the power is fully under the control of the operator, for which improvement I have applied for letters patent. Specifications, drawings and model were deposited in the Patent Office on the 9th of July, 1855.
J. NEFF, No. 3½ South Seventh Street, Philadelphia.
ELECTRO, MAGNETIC MACHINES, TELEGRAPH REGISTERS,
RECEIVING MAGNETS AND KEYS,
MANUFACTURED AND FOR SALE BY
W. C. & J. NEFF, No. 3½ South Seventh Street, Philadelphia.


4
A40


6


WESTINGHOUSE
WL6.60
X-RAY RECTIFIER










SHIPPERS
ORDER NO.
CONTENTS
L-2


Thor
Double Benefit
HEALTH LAMP
SERIAL NO.
110 VOLT A.C. OR D.C.
12 AMPS. MAX.
HURLEY MACHINE COMPANY
CHICAGO
NEW YORK
LONDON
















TIMBRETONE MODEL B
LOUDSPEAKER



100% PROOF
Magic
the Radio that Soothes your
PRODUCED, BOTTLED and BLENDED
RADIO DEVELOPMENT and RESEARCH
Jersey City 4, N.J.
MADE IN U.S.A.
AGLOW WITH MELLOW


150
100% PROOF
PRODUCED, BOTTLED
RADIO DEVELOPMENT
MADE IN U.S.A.
AGLOW WITH





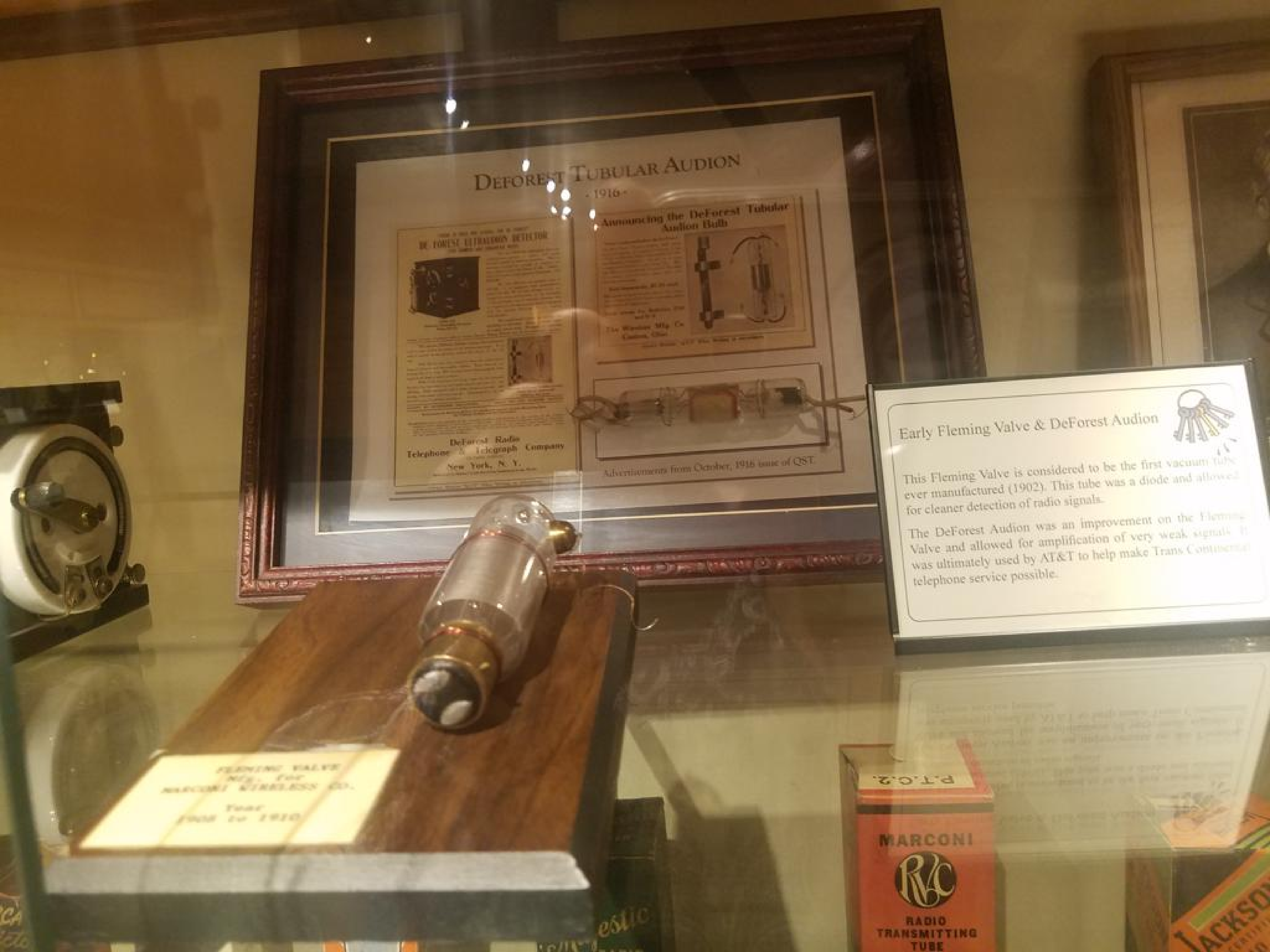

ell-placed U.S. companies,
Electric companies, grappled to
em for the electrification of America,
as the go-to provider of electricity.
s of practical electricity, the principals
nghouse and Thomas Edison, were
nous potential reward: the opportunity
with all of the things that it might
tions of American businesses and homes.
THE EGG OF COLUMBUS
START

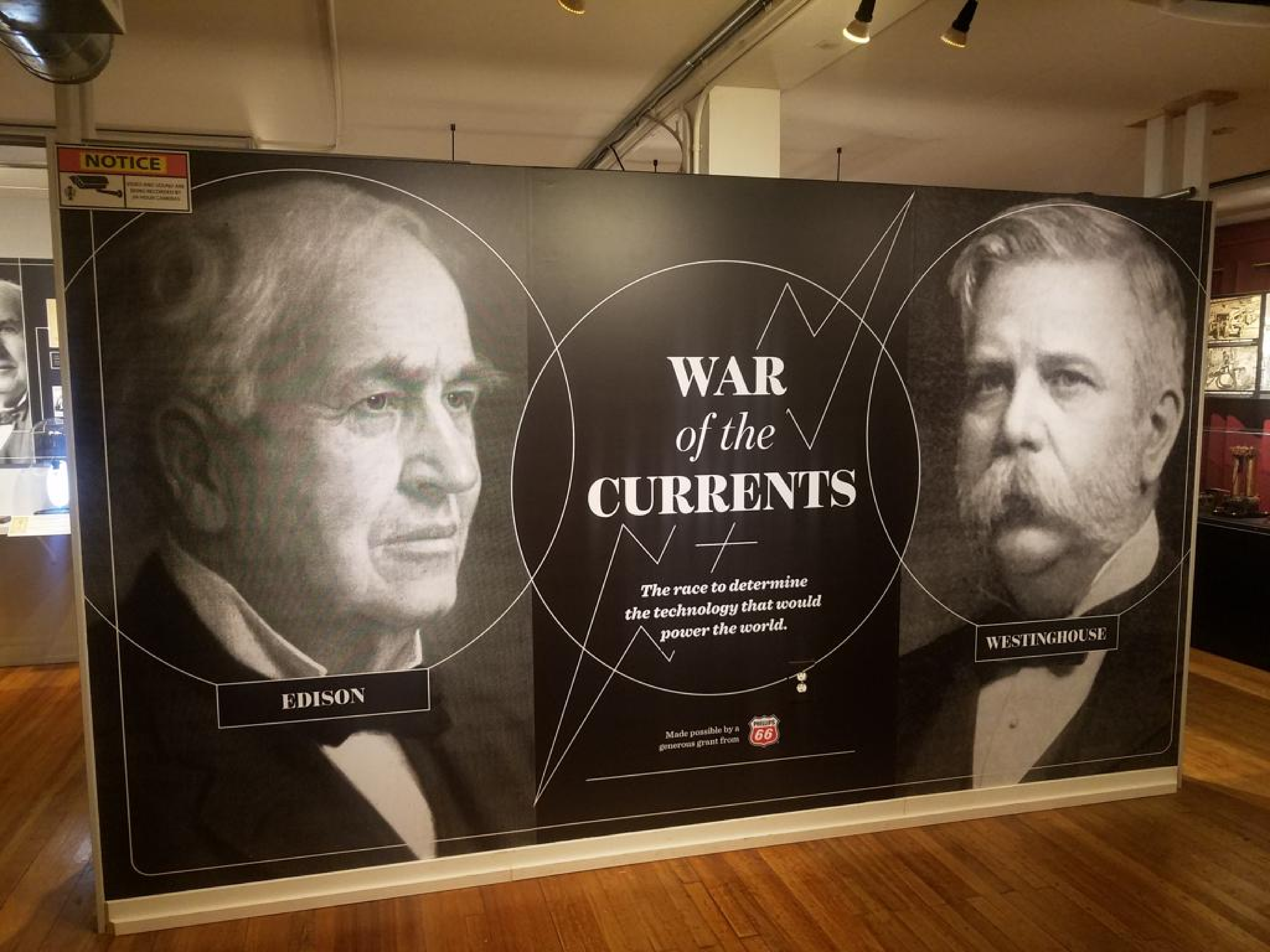

THE EGG OF COLUMBUS
START
Press when button is illuminated green



& DeForest Audion
onsidered to be the first vacuum tube
). This tube was a diode and allowed
adio signals.
as an improvement on the Fleming
amplification of very weak signals
AT&T to help make Trans Con
le.
Dr. Lee de Forest
De Forest Apparatus
DESIGNED BY EXPERTS
WIRELESS TELEGRAPH AND TELEPHONE
RECEIVING OR TRANSMITTING
SALES DEPT.
RADIO TELEPHONE CO.
1 Madison Avenue, New York City


Hygrade
TUNGSRAM


DEFOREST TUBULAR AUDION
· 1916 ·
DE FOREST ULTRAUDION DETECTOR
DeForest Radio
Telephone & Telegraph Company
New York, N. Y.
Announcing the DeForest Tubular Audion Bulb
The Wireless Mfg. Co.
Canton, Ohio
Advertisements from October, 1916 issue of QST.
Early Fleming Valve & DeForest Audion
This Fleming Valve is considered to be the first vacuum tube ever manufactured (1902). This tube was a diode and allowed for cleaner detection of radio signals.
The DeForest Audion was an improvement on the Fleming Valve and allowed for amplification of very weak signals. It was ultimately used by AT&T to help make Trans Continental telephone service possible.
FLEMING VALVE
Mfg. for
MARCONI WIRELESS CO.
Year
1908 to 1910
P.T.C.2.
MARCONI
RVC
RADIO
TRANSMITTING
TUBE

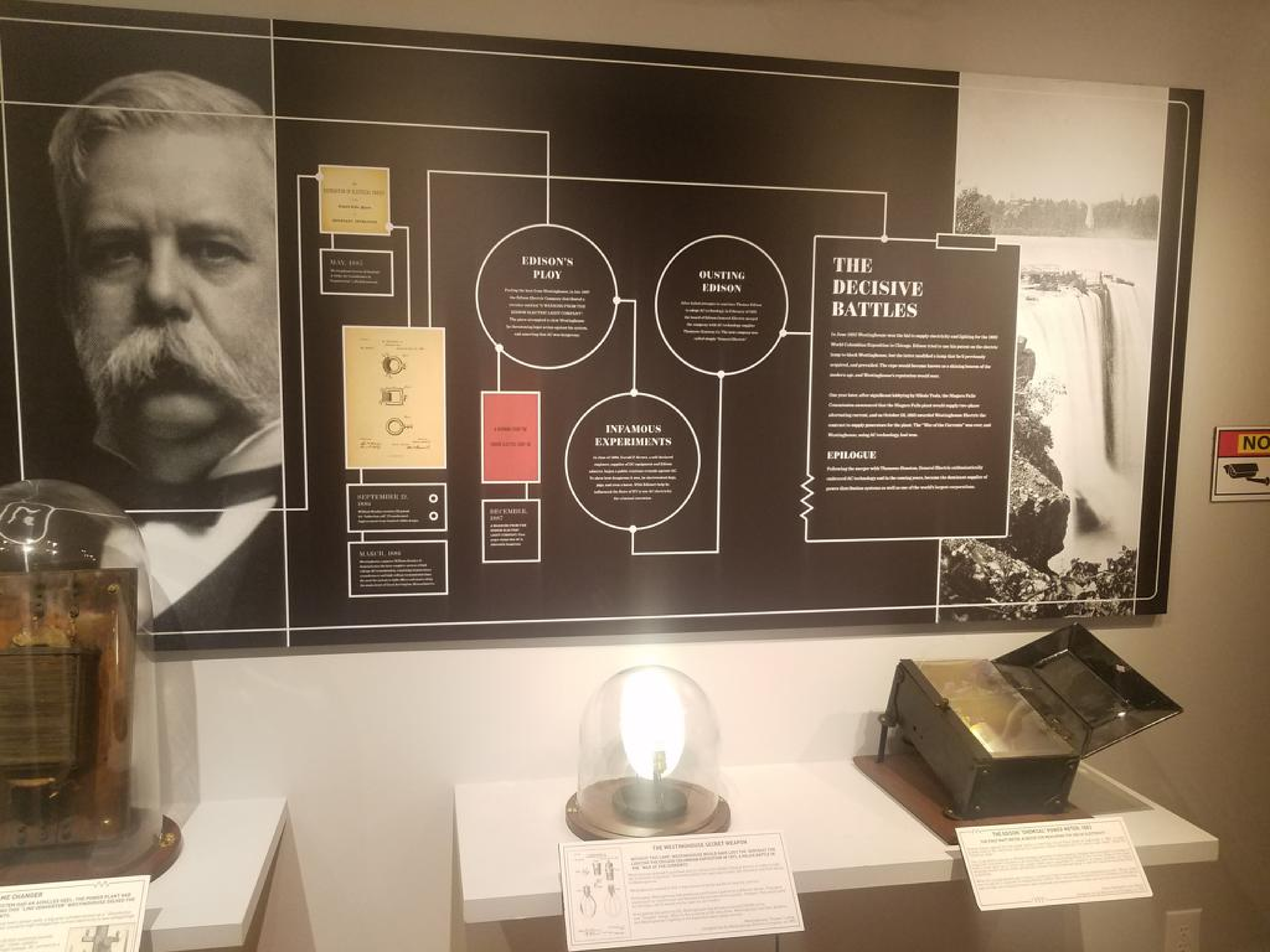

NOTICE
WAR
of the
CURRENTS
The race to determine
the technology that would
power the world.
EDISON
WESTINGHOUSE
Made possible by a
generous grant from
66


WAR
of the
CURRENTS
The race to determine
the technology that would
power the world.
ENTER
THE
FRAY

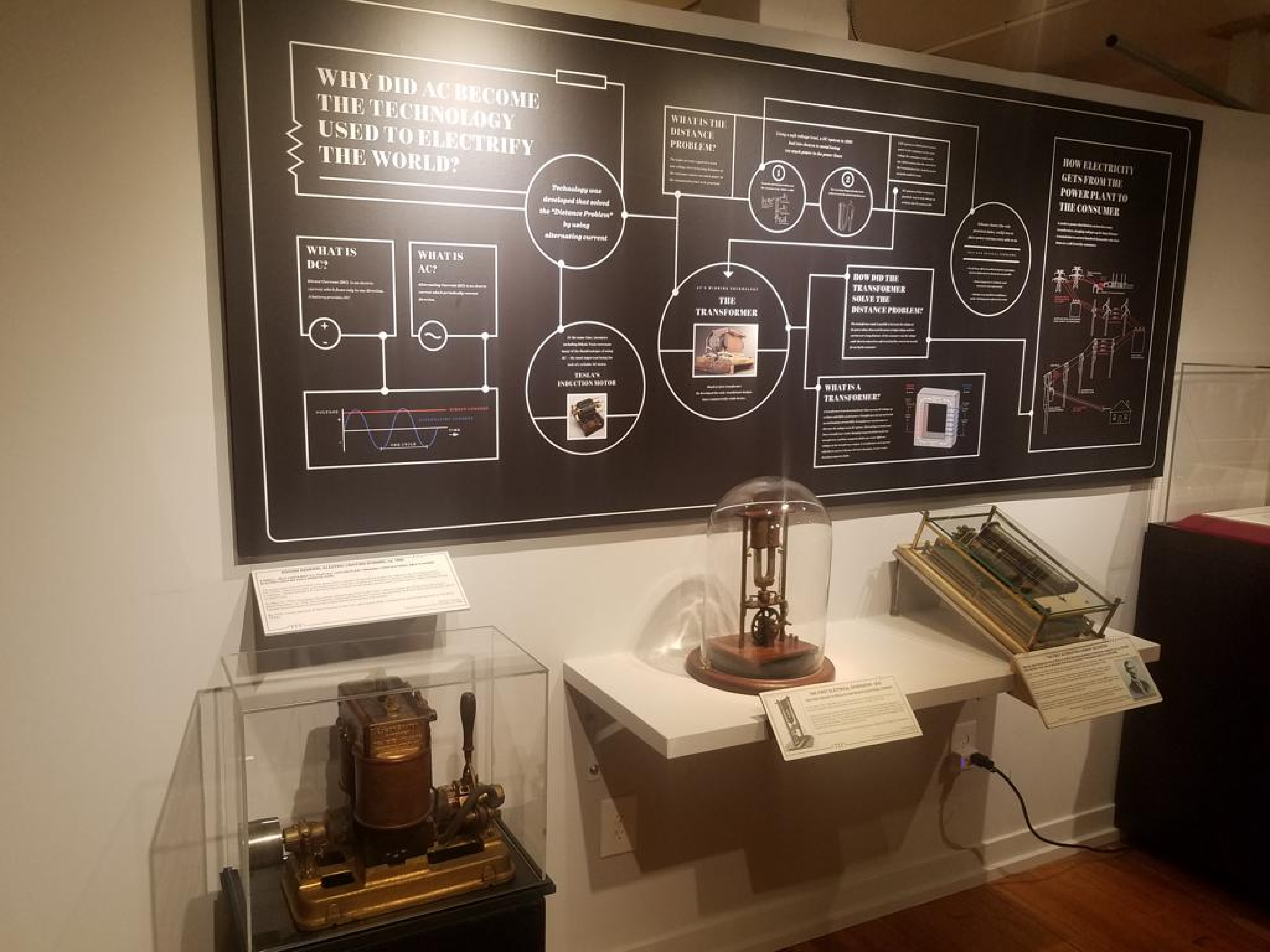

ENTERING THE FRAY
On January 27, 1880, Edison received the patent for the electric lamp, and a system for production and distribution of electricity based on Direct Current (DC), the most popular electrical technology system of the day. Investing significantly, he rapidly expanded his business.
Meanwhile, seeing the growing potential of the business of electricity, Westinghouse jumped in and began supplying DC equipment. However, he soon found that he couldn't compete with Edison due to the latter's hold on DC related intellectual property. There was also another big problem...
THE DISTANCE PROBLEM
DC had many advantages, including the use of electric motors. But it had one severe limitation: users of the electricity it made had to be within one mile of a power generating station!
Faced with Edison's stranglehold over DC, along with its inherent problems, Westinghouse began looking into the possibilities of Alternating Current (AC).
NIKOLA TESLA
PUTTING THE PIECES TOGETHER
TESLA'S MOTOR



NIKOLA TESLA
JANUARY 27,
SEPTEMBER, 1882
SEPTEMBER 4, 1882
PUTTING THE PIECES TOGETHER
TESLA'S MOTOR
EDISON'S PLOY
OUSTING EDISON
INFAMOUS EXPERIMENTS
POLYPHASE "INDUCTION" MOTOR


EDISON'S PLOY
OUSTING EDISON
INFAMOUS EXPERIMENTS
THE DECISIVE BATTLES
EPILOGUE
THE WESTINGHOUSE SECRET WEAPON




WHY DID AC BECOME THE TECHNOLOGY USED TO ELECTRIFY THE WORLD?
Technology was developed that solved the "Distance Problem" by using alternating current
WHAT IS THE DISTANCE PROBLEM?
WHAT IS DC?
WHAT IS AC?
THE TRANSFORMER
TESLA'S INDUCTION MOTOR
HOW DID THE TRANSFORMER SOLVE THE DISTANCE PROBLEM?
WHAT IS A TRANSFORMER?
HOW ELECTRICITY GETS FROM THE POWER PLANT TO THE CONSUMER


20
Bamboo Filament
Gas Light Fixture Modified for
Edison Electric Lamp
1879

